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*Andrew Giersey*

Dated 13 May 2003

# Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

THE PATENT OFFICE

16 APR 2002

NEWCASTLE

The Patent Office

Cardiff Road  
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Gwent NP9 1RH

1. Your reference KP/8084

2. Patent application number  
(The Patent Office will fill in this part)

0208683.3

16 APR 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Morehands Limited T/A MH Foods  
4-5 Church Trading Estate, Slade  
Green Road, Erith, Kent. DA8 2JA.

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

8363996001

4. Title of the invention

Cheese Substitute

5. Name of your agent (if you have one)

Swindell & Pearson

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

48 Friar Gate,  
Derby DE1 1GY

Patents ADP number (if you know it)

00001578001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

No

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

**Patents Form 1/77**

Enter the number of sheets for any of the following items you are filing with this form.  
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Continuation sheets of this form

Description

7

Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents  
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature Swindell & Pearson Date 15/04/2002  
Swindell & Pearson

12. Name and daytime telephone number of person to contact in the United Kingdom Kevin Parnham Tel: 01332 367051

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## Cheese Substitute

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### Field of the Invention

The present invention relates to cheese substitutes and more particularly to a substitute for parmesan cheese.

### Background to the Invention

Parmesan cheese is a mature and hard full fat cheese which is traditionally made from dairy milk and formed in vats using rennet taken from the stomachs of slaughtered dairy animals and in particular calves. The rennet is extracted from the slaughtered animal. The process of forming parmesan cheese also involves adding salt and other procedures in order to create the characteristic parmesan cheese smell and taste.

Most parmesan cheese is grated and traditionally used to season cooked pasta dishes. Thus, it is its taste and effect which is important rather than its specific composition. Parmesan cheese is normally transported in relatively large wheels or wedges and the particles grated in a wide range of sizes from shavings to fine powder dependent upon the level of seasoning required.

Parmesan cheese presents a problem to a number of potential users. To a vegan it is unacceptable as it is a dairy product, to a vegetarian it is unacceptable due to the rennet being derived as a by-product of the slaughter of calves and is unacceptable to other people who have allergies and intolerances to dairy products or mature cheese. It will also be understood that parmesan cheese being a milk product is limited by religious beliefs, such as those of the Hebraic/Jewish faith, which prevent or at least discourage consumption at the same time of dairy and meat products.

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There is a desire to provide an acceptable parmesan cheese substitute.

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Thus, for example an acceptable vegetarian alternative has been provided where the coagulation is provided by a bacterial substitute instead of the traditional rennet obtained from slaughtered calves. However, none of these substitute cheeses for parmesan are considered fully acceptable.

#### Summary of the Present Invention

In accordance with the present invention there is provided a cheese substitute consisting of by weight, a 60-95% bland edible particulate, normally protein component, a 1-25% vegetable fat component, a 1-15% salt component and a desired proportion of parmesan flavouring. Typically, the bland edible particulate protein component is a soya product.

Also in accordance with the present invention there is provided a cheese substitute formed by a method comprising softening a volume of fully hydrogenated or partially hydrogenated vegetable oil by warming and combining that softened hydrogenated vegetable oil with a soya product, such as flour, and salt along with a parmesan flavouring with a composition in the range soya product (60-95% by weight), fat (up to 25% by weight), salt (up to 15% by weight) and parmesan flavouring to a desired proportion using a mechanised blender until a crumbly product is formed by the coagulation of the fat with the other ingredients. Preferably, the soya product as a flour is about 70% by weight, the fat about 17% by weight, the salt about 12% by weight and the proprietary parmesan flavouring about 0.5% by weight.

Preferably, the soya product is a soya bean or soya flour derivative. Typically, the soya product or particulate protein component is a soya flour which is a full fat and pre-cooked variety prior to incorporation in accordance with the method and substitute cheese described above.

Preferably, the vegetable fat component is a fully hydrogenated or partially hydrogenated vegetable oil of a type known as "Vegetable Shortening".

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Alternatively, the vegetable fat component is a palm oil or other suitable vegetable fat based product.

Preferably, the salt component is a natural salt or a processed salt substitute. Furthermore, the salt component will have a grain size that has limited intrusive effect in the cheese substitute texture.

Preferably, the parmesan flavouring constitutes 0.1-1% by weight of the substitute cheese. Typically, colourant and/or preservatives and/or regulators and/or other additives are added for taste and/or texture..

Typically, the crumbled cheese substitute will comprise particles in the range up to 3mm in dimension consistent with that normally acceptable as gratings for food seasoning with parmesan cheese.

#### Description of Preferred Embodiments of the Present Invention

Embodiments of the present invention will now be described by way of example.

A cheese substitute to imitate grated parmesan cheese must provide the same smell, colour, flavour and texture to allow seasoning by a user in accordance with their usual practice. Thus, in accordance with the present invention a protein or other bland edible particulate source is combined with fat and salt along with a flavouring to approximate the taste and smell of parmesan. The preferred choice of protein or edible particulate source is a full fat pre-cooked soya flour. The fat chosen is one suitable to act as the binding as well as mixing matrix for the cheese substitute. Thus, a vegetable based fat such as partially or fully hydrogenated vegetable oil commonly known as "Vegetable Shortening" is used. A fine table salt is used in order to allow ready and discrete combination with the other constituents of the cheese substitute. In short, the protein or particulate source, fat and salt acts as a matrix in which a proprietary vegetarian parmesan flavouring is held. This proprietary

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vegetarian parmesan flavouring is an essence, possibly concentrated which approximates the smell and taste of parmesan cheese but requires a different level of usage for seasoning in comparison with conventional parmesan cheese supplies. The proprietary parmesan cheese flavouring may be naturally or synthetically produced. An example of a suitable parmesan cheese flavouring is that produced by Aromco Ltd., Ware, Herts., under their reference "Cheese Parmesan Flavouring OF3826". This is a flavouring having a vegetable oil solvent base with the active flavouring distributed in that base. Such a vegetable oil solvent base helps with appropriate dispersion of the flavouring in the cheese substitute.

The matrix of the protein or particulate source and fat along with salt essentially bulks up the proprietary vegetarian parmesan flavouring to approximate a consistency for seasoning typical of conventionally supplied and produced grated parmesan cheese. In such circumstances, the present cheese substitute can be used as conventional gratings, powder or shavings without special consideration. The present cheese substitute and conventionally produced parmesan cheese are substantially interchangeable. However, the present cheese substitute is not a dairy product and can be used by vegetarians, vegans and individuals susceptible to allergies with dairy products, along with fulfilling certain religious customs.

In order to form the present cheese substitute, the fat is softened to allow ready combination with the protein or particulate source, that is to say full fat pre-cooked soya flour and fine grain table salt along with the proprietary parmesan flavouring. The mixture is mechanically combined using a blender. As the vegetable based fat coalesces from a softened form a crumbly mass is rendered reminiscent of dairy or conventionally produced grated parmesan cheese. The crumbs of substitute cheese are up to 3 mm across and so consistent with typical granular or grated parmesan cheese for seasoning purposes.

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If necessary the granulated substitute cheese may be compressed into blocks or rounds typical of conventional parmesan cheese presentation. These blocks or rounds may be cut into wedges in a conventional manner. Water may be added in order to facilitate binding of the crumbs of substitute cheese. The water content may be up to 20% by weight of the substitute cheese. The salt component of the cheese substitute will sterilise the water and possibly aid caking of the substitute cheese crumbs to form a block or round. Typically, the crumbs of substitute cheese with water will be loaded into a press mould of the desired shape. The substitute cheese mixture will be pressed and squeezed into a caked association with release of some liquid/water. Once formed as a block or round, the substitute cheese may be sliced as required.

The present substitute cheese is a parmesan cheese facsimile which is a non-dairy product. Thus, as indicated previously although resembling parmesan cheese it is more acceptable for vegans, vegetarians and persons allergic to dairy products. In addition, religious regulations and conventions with regard to storage and presentation of dairy products with meat products are not applicable to the present cheese substitute.

As indicated above the protein or particulate source, fat and salt components, along with any water added where required, essentially act as a matrix upon which the parmesan flavouring is presented in order to provide an allusion to the taste and odour of conventional parmesan cheese. The protein or particulate, fat and salt components essentially approach the consistency and texture of conventional parmesan cheese in its crumbled or grated form. However, other additives may be added to further refine taste and/or texture along with extend shelf life.

The specific constituent proportions of the protein or particulate, fat and salt will be chosen dependent upon a number of factors including customer expectation, probable storage conditions in terms of time, temperature and humidity along with acceptable cost. A typical practical composition would be in the order of 69-71% by weight protein or edible particulate in the form of



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soya flour, 16-18% by weight of hydrogenated vegetable oil along with 11-13% by weight fine grade salt. The mixing process between the matrix (soya flour/fat/salt) and the proprietary parmesan flavouring should be sufficient to achieve at least an acceptable distribution of the parmesan flavouring throughout the cheese substitute. A typical weight percentage of proprietary parmesan cheese flavouring will be in the order of 0.1-1% weight. Thus, a relatively intensive and/or long term blending process must be performed in order to adequately distribute this proprietary parmesan flavouring throughout the substitute cheese. Typically, a bladed mechanical blender will be used in order to shear the constituent elements of the substitute cheese in a blending/mixing process. In any event, there may be a balance between the proportion of parmesan cheese flavouring added to meet customer expectation against the level of mixing. The flavouring may be a relatively expensive material component but mixing will affect production time so both will be factors in determining cost of the cheese substitute.

As indicated above, the fat constituent will be softened prior to mixing with the other constituent parts of the substitute cheese. Typically, the fat is heated to soften it. As the fat cools it congeals or coagulates to bind the substitute cheese and form the crumbled granules of acceptable size for parmesan cheese type seasoning processes.

It will be appreciated in addition to providing balanced flavouring in the substitute cheese the salt constituent may act as a preservative to facilitate longer storage and potentially as a temperature regulator such that further heat softening of the fat is resisted in order to maintain the crumbled granular agglomerations of substitute cheese in accordance with the present invention.

It is important that the matrix comprising the protein or edible particulate source, fat and salt components is essentially neutral in terms of taste in order that it does not detract from the proprietary parmesan flavouring distributed throughout the substitute cheese. Full fat pre-cooked soya flour has no strong flavour. Thus, when the present substitute cheese is sprinkled, in a

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manner consistent with conventional parmesan cheese over cooked pasta with or without a strong sauce, there is no readily noticeable or appreciable difference from conventionally produced spray dried parmesan cheese commercially sold as grated.

The present cheese substitute provides a bland and edible particulate product which approximates that of parmesan cheese for seasoning purposes.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and whether or not particular emphasis has been placed thereon.